

Re-numbered Claims

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Application No.: 09/955,462
Filed: September 18, 2001
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Listing of Claims

Please amend the claims by replacing all prior versions of the claims with the following listing of claims:

1. (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
 - a) polysome-free HeLa cell cytoplasmic extract;
 - b) a methylated cap analog; and
 - c) a cap-labeled mRNA substrate.
- ~~1~~ 2. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.
- ~~2~~ 3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ 4 wherein said HeLa cell cytoplasmic extract is prepared by dialysis of said extract containing 10% glycerol.
4. (cancelled)
- ~~5~~ 5. (previously presented) The mammalian *in vitro* mRNA decapping system of claim ~~2~~ 6 wherein said S100 cell cytoplasmic extract comprises a 100,000 x g, 1 hour supernatant from a HeLa cell lysate.
- ~~6~~ 6. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said methylated cap analog is ^{7me}GpppG or ^{7me}GTP.
- 7 - 8. (cancelled)
- ~~9~~ 3. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

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10. (currently amended) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

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11. (previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 wherein said cap-labeled mRNA substrate comprises poly(A) or at least one RNA element.

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12. (previously presented) The mammalian *in vitro* mRNA decapping system of claim *11* wherein said RNA element is an AU-rich element.

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13. (previously presented) The mammalian *in vitro* mRNA decapping system of claim *11* wherein said RNA element is a pyrimidine-rich element.

14 - 16. (cancelled)

16
17. (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
a) a polysome-free HeLa cell cytoplasmic extract;
b) a methylated cap analog; and
c) cap-labeled mRNA substrate.

18. (cancelled)

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19. (previously presented) The kit of claim *17* *16* wherein said cap-labeled mRNA substrate is labeled at the alpha phosphate of the cap.

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20.

(currently amended) The kit of claim ¹⁶~~17~~ wherein said cap-labeled mRNA substrate is labeled at the cap of said cap-labeled mRNA substrate by a label selected from the group consisting of a radioactive label, a non-radioactive isotopic label, a fluorescent moiety, a visibly-detectable moiety, a releasable substrate, [[or]] a co-factor for a chemical reaction, and a co-factor for an enzymatic reaction.

21 - 26. (cancelled)

27.

(previously presented) The mammalian *in vitro* mRNA decapping system of claim 1 further comprising means for sequestering proteins that bind to poly(A).

28.

(previously presented) The mammalian *in vitro* mRNA decapping system of claim ⁹~~11~~ further comprising means for stimulating decapping of the cap-labeled mRNA substrate wherein the cap-labeled mRNA substrate comprises poly(A).

29.

(previously presented) The mammalian *in vitro* mRNA decapping system of claim ⁹~~11~~ further comprising a cold poly(A) competitor RNA.

30.

(previously presented) The mammalian *in vitro* mRNA decapping system of claim ¹³~~12~~ further comprising means for reducing decapping of the cap-labeled mRNA substrate.

31.

(currently amended) The mammalian *in vitro* mRNA decapping system of claim ¹³~~12~~ further comprising an AU-rich element competitor RNA.

32.

(previously presented) The kit of claim ¹⁶~~17~~ wherein the cap-labeled mRNA substrate comprises poly(A).

33.

(previously presented) The kit of claim ²⁰~~32~~ further comprising means for stimulating decapping the cap labeled mRNA substrate.

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~~22~~ ²⁰ ~~24~~ (previously presented) The kit of claim ~~22~~ further comprising a cold poly(A) competitor RNA.

~~23~~ ¹⁶ ~~25~~ (previously presented) The kit of claim ~~17~~ wherein the cap-labeled mRNA substrate comprises an RNA element.

~~24~~ ²³ ~~26~~ (previously presented) The kit of claim ~~25~~ wherein the RNA element is an AU-rich element.

~~25~~ ²⁴ ~~27~~ (currently amended) The kit of claim ~~26~~ ²⁴ further comprising means for reducing decapping the cap-labeled mRNA substrate.

~~26~~ ²⁴ ~~28~~ (previously presented) The kit of claim ~~26~~ further comprising an AU-rich element competitor RNA.

~~27~~ ²⁴ ~~29~~ (previously presented) A mammalian *in vitro* mRNA decapping system comprising:
a) a polysome-free HeLa cell cytoplasmic extract;
b) a cap-labeled mRNA substrate; and
c) means for decapping the cap-labeled mRNA substrate.

~~29~~ ¹⁶ ~~40~~ (previously presented) A kit for measuring mRNA decapping *in vitro* comprising:
a) a polysome-free HeLa cell cytoplasmic extract;
b) a cap-labeled mRNA substrate; and
c) means for decapping the cap-labeled mRNA substrate.

~~41~~ ¹⁶ (previously presented) The kit of claim ~~17~~ wherein the polysome-free HeLa cell cytoplasmic extract is HeLa S100 cell cytoplasmic extract.

~~28~~ ²⁷ ~~42~~ (previously presented) The kit of claim ~~29~~ ²⁷ wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cell cytoplasmic extract.

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43. (previously presented) The kit of claim ~~10~~ ²⁹ wherein the polysome-free HeLa cell cytoplasmic extract is a HeLa S100 cytoplasmic extract.